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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,716	12/02/2004	Johan Torsner	P16904-US1	9911
27045	7590	06/13/2007		
ERICSSON INC. 6300 LEGACY DRIVE M/S EVR 1-C-11 PLANO, TX 75024			EXAMINER MATIN, NURUL M	
			ART UNIT 2611	PAPER NUMBER
			MAIL DATE 06/13/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/516,716

Applicant(s)

TORSNER, JOHAN

Examiner

Nurul M. Matin

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 30 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 29-50 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 29-50 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 06/09/2006, 12/02/2004.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. The amendment filed April 30, 2007 overcomes the following objection/rejection of the last Office Action.

- a) Objection to the drawings 1-3 for not labeled as Prior Art.
- b) Objection to the abstract.

### ***Response to Arguments***

1. Applicant's arguments, see remarks, filed April 30, 2007, with respect to the rejection(s) of claim(s) 29 under 102(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Jung, WO 01/56249 and Marzec et al, US 4601035.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 29-30, 49-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jung, WO 01/56249 and in view of Haas, US 5115432.

Re claim 29, Jung discloses a method of failure avoidance when synchronizing a transceiver end and a receiver end by means of transmitted sequence numbers,

wherein each sequence number is not necessarily error protected, (page 3, line 21- page 4, line 4, "The present invention is directed to a method and an apparatus for synchronizing the transmitting side and the receiving side in an IP network that uses a stream encryption algorithm. A sequence number is introduced into the payload of each packet at the transmitting side and transmitted with the packets. An error detection mechanism is used to detect when the synchronization is lost and a recovery procedure is initiated). But Jung fails to teach that a received sequence number considered erroneous according to a predetermined criterion is disregarded. However, Haas does teach a received sequence number considered erroneous according to a predetermined criterion is disregarded (col.6, line 62-67, "The tasks of sequencing 503 includes checking packets for valid sequence numbers and checking packets for duplicate sequence numbers. The data in a packet that is determined to contain a duplicate or invalid sequence number must be discarded").

Therefore, taking the combined teaching of Jung and Haas as a whole, it would have been obvious to one of ordinary skill in the art to incorporate the arrangement of the a received sequence number considered erroneous according to a predetermined criterion is disregarded as thought in Haas into Jung for providing the high-level services.

Re claim 30, Jung and Haas discloses the method according to claim 29, further comprising: and Jung reference also teaches arranging sequence numbers according to their time of arrival; and, purging received sequence numbers not within a prediction interval as determined from one or more earlier received and non-purged sequence

numbers and number of one or more transmission time intervals with no data received between consecutively received sequence numbers (page 3, line 24-26, page 4, line 20-23, page 6, line 14-19, "Upon receipt at the receiving side, the sequence number is extracted from the payload and used to synchronize the receiving side to the transmitting side; The sequence number processor is further configured to extract a sequence number from a received encrypted data packet, and the encryption/decryption module is further configured to decrypt the encrypted data packet based on a value of the extracted sequence number. If synchronization between the transmitting side and the receiving side should become lost ('as manifested by consecutive corrupted data packets), then the receiving side may notify the transmitting side of this condition via an error message. Upon receiving such an error message, the transmitting side may initiate a data recovery procedure including informing the receiving side that the sequence number will be restarted at a certain data packet or the next burst of data packets").

Re claim 49, Jung and Haas references teach the method according to claim 29, and Jung reference also teaches the method avoid cipher synchronization failure (page 3, line 26-27, "An error detection mechanism is used to detect when the synchronization is lost and a recovery procedure is initiated").

Re claim 50, Jung and Haas references teach the method according to claim 29, and Jung reference also teaches the method allows for reduction of redundancy being added to payload (page 6, line 2-6, "The sequence number may be appended to the encrypted payload of a speech data packet and then transmitted along with the packet.

In some cases, the payload is encoded or compressed prior to encryption in order to minimize the size of the data packet").

4. Claims 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jung, WO 01156249, Haas and in view of Shiu et al, US 2003/0036403.

Re claim 31, Jung and Haas fail to teach that the transmission time intervals are weighted by the maximum number of transmission blocks of the transport format.

However, Shiu does (page 1, Para 0007, line 3-7, "transmission time interval (TTI) over which the transport format applies, the size of each transport block of data, the number of transport blocks within each TTI").

Therefore, taking the combine teaching of Jung, Haas and Shiu as a whole, it would have been obvious to one of ordinary skill in the art to incorporate the arrangement of the transmission time intervals are weighted by the maximum number of transmission blocks of the transport format as thought in Shiu into Jung and Haas for different types or rates of data to be transmitted over a single transport channel (page 1, Para 0007, line 9-10).

Re claim 32, Jung, Haas and Shiu references discloses the method according to claim 31, and Shiu reference also teaches an integer is added to the weighted number of transmission intervals (fig. 7, page 8, Para 0088, line 8-12, "The terminal receives data for K transport channels (i.e., TrCH (k) where  $k=1, 2, \dots, K$ , and K can be any integer one or greater) during TTI (n), at step 712").

5. Claims 33 -34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jung, WO 01/56249, Haas, US 5115432 and in view of Fuehrer et al, US 200410156462.

Re claim 33, Jung and Haas fail to teach that a received sequence number greater than an estimated greatest sequence number allowed is disregarded. However, Fuehrer does (page 5, Para 0060, line 6-13 and Para 0061, line 1-4, "the offset are compared with a predetermined threshold value, in which case the clock adjustment may then either be omitted or limited to the threshold value if the calculated offset exceeds or falls below the threshold value").

Therefore, taking the combine teaching of Jung, Haas and Fuehrer as a whole, it would have been obvious to one of ordinary skill in the art to incorporate the arrangement of a received sequence number greater than an estimated greatest sequence number allowed is disregarded as thought in Fuehrer into Jung and Haas for on reaching and/or exceeding this maximum value, either the clock adjustment is stopped, i.e., there is no further adjustment of the adjustment value.

Re claim 34, Jung, Haas and Fuehrer references disclose the method according to claim 30, and Fuehrer reference also teaches a received sequence number not greater than an estimated greatest sequence number allowed is not disregarded (page 5, Para 0060, line 6-13 and Para 0061, line 1-5).

6. Claims 35-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jung, WO 01156249, Haas, US 5115432 and in view of Jiang et al, US 2002/0126629.

Re claim 35, Jung and Haas fail to teach that the purged sequence of sequence numbers is passed to updating of a hyper frame number. However, Jiang does (page 4, Para 0035, line 16- page 5, line 1, "As the sequence number value of the PDU 123f is less than the sequence number value for the PDU 123d, rollover of the sequence numbers is inferred, and the HFN 106h on the receiving side is incremented accordingly. Decryption of the PDU 123f is thus successfully performed with the new HFN 106h value").

Therefore, taking the combine teaching of Jung, Haas and Jiang as a whole, it would have been obvious to one of ordinary skill in the art to incorporate the arrangement of the purged sequence of sequence numbers is passed to updating of a hyper frame number as thought in Jiang into Jung and Haas for a subsequent PDU 123h is thus properly decrypted using a receiving side 120 HFN 106h value that is synchronized with the transmission side HFN 106h value.

Re claim 36, Jung, Haas and Jiang references disclose the method according to claim 35, and Jiang reference also teaches the hyper frame number is updated according to a basic method (page 4, Para 0035, line 1-3 and page 5, line 2-3, " the sequence numbers for the PDUs 123d and 123f implies that the PDU 113e was lost in transmission (the basic method updates HFN correctly also if one or more PDUs are lost during transmission)").

Re claim 37, Jung, Haas and Jiang references discloses the method according to claim 29, further comprising: and Jiang reference also teaches arranging of received sequence numbers according to their time of arrival; and, for each decision interval,



sequentially disregarding each one of the received sequence numbers within a decision window comprising consecutively received sequence numbers (page 9, Para 0056).

Re claim 38, Jung, Haas and Jiang references teach the method according to claim 37, and Jiang reference also teaches the decision window spans an integer number of consecutively received sequence numbers starting with the sequence number of the decision interval (page 6, Para 0041, line 15-19, "Assuming that no PDUs 213 have been discarded between the current TTI 212 and a previous TTI 211, a first PDU 213a in the TTI 212 is assigned an SN value of 124, which is one greater than the highest SN value in the previous TTI 211, which was 123").

Re claim 39, Jung, Haas and Jiang references teach the method according to claim 37, and Jiang reference also teaches the decision window spans an integer number of consecutively received sequence numbers starting with the sequence number of the most recently received sequence number (page 6, Para 0042, line 12-20, In particular, the MAC layer 204 recalls a previous SN value 204p, which is the highest SN value received in a previous TTI 221, and recalls unaccounted lost PDUs 204L from the previous TTI 221. Using these values, the MAC layer 204 obtains a minimum SN value 204m and a maximum SN value 204x to define a receiving window 204w. Any PDUs 223 with SN values that are not within the range specified by the minimum SN value 204m and the maximum SN value 204x").

Re claim 40, Jung and Haas and Jiang references teach the method according to claim 37, Jiang reference also teaches the decision window spans at least four

consecutively received sequence numbers (fig.7, shows the consecutive sequence number from 123 to 127).

Re claim 41, which claim the same subject matter as recited in claim 35.

Therefore, claim 41 has been analyzed and rejected with respect to claim 35.

Re claim 42, which claim the same subject matter as recited in claim 36.

Therefore, claim 42 has been analyzed and rejected with respect to claim 36.

Re claim 43, Jung, Haas and Jiang references disclose the method according to claim 41, and Jiang reference also teaches if, for any one disregarded sequence number within the decision window, the candidate hyper frame number updating results in a non-increased hyper frame number, no further sequence number is disregarded and no further candidate HFN updating is undertaken for the decision interval (page 6, Para 0044, line 2-7, "If we assume that no PDUs were lost in the previous TTI 221, then "1" is zero. The MAC layer 204 thus computes the minimum SN value 204m as 124, and computes the maximum SN value 204x as 13. Any PDUs 223 with SN values that are not within the range (124... 13) of the receiving window 204w are discarded as corrupt").

Re claim 44, Jung, Haas and Jiang references disclose the method according to claim 41, and Jiang reference also teaches if, for any one disregarded sequence number within the decision window, the candidate hyper frame number updating results in a non-increased hyper frame number, the hyper frame number of the decision interval is set equal to the hyper frame number of the preceding decision interval (page 6, Para

0044 & Para 0045, "In the TTI 222, a first PDU 223a has an SN value of 124, which is equal to the minimum SN value 204m, and so is accepted").

Re claim 45, Jung, Haas and Jiang references discloses the method according to claim 41, and Jiang reference also teaches if, for all of the disregarded sequence numbers within the decision window, the candidate hyper frame number updating results in the same hyper frame number, this candidate hyper frame number is decided to be the hyper frame number of the decision interval (page 7, Para 0048, line 92-99, "the RLC layer 202 assumes that any non-contiguous SN values (i.e., SN values that advance by anything greater than the first predetermined number 200a ) indicate that data has been lost or discarded. Note that since PDU 223q was discarded, the HFN 206h on the receiving side 220 will remain synchronized with the HFN 206h on the transmitting side").

Re claim 46, Jung, Haas and Jiang references teach the method according to claim 41, and Jiang reference also teaches if, for all of the disregarded sequence numbers within the decision window, the candidate hyper frame number updating results in a hyper frame number increase, the hyper frame number of the decision interval is set equal to the hyper frame number of the preceding decision interval increased by one (page 4, Para 0034, line 12-19, "an ending sequence number value 104e for the previous TTI 121 held a value of 123. This value is incremented by one to obtain a value of 124 for the starting sequence number value 104s for the current TTI 122. The starting sequence number value 104s should thus be equal to the sequence number value of the first transmitted PDU 113a").

Re claim 47, Jung, Haas and Jiang reference discloses the method according to claim 36, and Jiang reference also teaches the basic method increases a hyper frame number if, when comparing two received sequence numbers, the most recent of the two sequence numbers is less than the other sequence number (page 4, Para 0035, line 12-19, "Both the PDU 123d and the PDU 123f have sequence number values that land within the acceptable range, as defined by the starting sequence number value 104s and ending sequence number value 104e, and so are accepted. As the sequence number value of the PDU 123f is less than the sequence number value for the PDU 123d, rollover of the sequence numbers is inferred, and the HFN 106h on the receiving side is incremented accordingly").

Re claim 48, Jung, Haas and Jiang references discloses the method according to claim 47, and Jiang reference also teaches the comparison is made modulo an integer, the integer being equal to the cycle length of transmitted sequence numbers (fig.9, page 5, Para 0037, line 11-21, FIG. 9 is a block diagram of an example PDU 130 according to the present invention. The PDU 130 uses a special LI 132a to indicate that PDUs immediately prior to the PDU 130 were discarded prior to transmission. The first octet of the PDU 130 includes a 7-bit sequence number (SN) field 131 and a single extension bit 133a. The extension bit 133a indicates the presence of a following LI, when set. In the preferred embodiment, the special LI 132a is the first LI in the PDU 130, and is a value that exceeds the maximum possible length of the PDU 130. Other positions of the special LI 132a are, of course, possible").

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nurul M. Matin whose telephone number is 571-270-1188. The examiner can normally be reached on mon-fri (7:30-5:00).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nurul Matin  
Assistance Examiner, Art Unit # 2611

Application/Control Number: 10/516,716  
Art Unit: 2611

Page 13

  
**MOHAMMED GHAYOUR**  
**SUPERVISORY PATENT EXAMINER**